

Amendments to the Claims:

This listing of claims will replace all prior versions and listing of claims in the application.

Please cancel claims 18, 20-23, 26, 29, 34, 37-39 and 44 without prejudice or disclaimer.

Please add new claims 97-124 as follows:

Claims 1-96 (cancelled)

97. (new) A method for determining a haplotype of a human BRCA1 gene comprising:

(a) determining the nucleotide sequence of the BRCA1 gene or fragment thereof from at least one female individual with a family history which indicates a predisposition to breast cancer, and

(b) comparing the determined nucleotide sequence from said female individual to SEQ ID NO: 263 wherein the presence of at least one variation in the determined nucleotide sequence indicates the haplotype.

98. (new) The method of claim 97 further comprising repeating steps (a) and (b).

99. (new) The method of claim 97 wherein the at least one variation is located in an exon coding region of the BRCA1 gene.

100. (new) The method of claim 99 wherein the at least one variation encodes an amino acid variation in the protein encoded by the BRCA1 gene.

101. (new) The method of claim 97 wherein the at least one variation is located in an intron region of the BRCA1 gene.

102. (new) The method of claim 97 wherein the nucleotide sequence or fragment thereof of the BRCA1 gene is determined using at least one oligonucleotide selected from Table 9.

103. (new) The method of claim 97 wherein the BRCA1 gene or fragment thereof is amplified prior to nucleotide sequencing.

104. (new) The method of claim 103 wherein the BRCA1 gene is amplified using at least one oligonucleotide selected from Table 9.

105. (new) The method of claim 97 further comprising comparing the determined nucleotide sequence to SEQ ID NO: 265.

106. (new) The method of claim 97 further comprising comparing the determined nucleotide sequence to SEQ ID NO: 267.

107. (new) The method of claim 97 further comprising determining the putative amino acid sequence of the protein encoded by the BRCA1 gene.

108. (new) The method of claim 107 further comprising comparing the determined putative amino acid sequence to SEQ ID NO: 264.

109. (new) The method of claim 107 further comprising comparing the determined putative amino acid sequence to SEQ ID NO: 266.

110. (new) The method of claim 107 further comprising comparing the determined putative amino acid sequence to SEQ ID NO: 268.

111. (new) The method of claim 97 wherein the nucleotide sequence or fragment thereof of the BRCA1 gene is determined in at least two individuals with a genetic history which indicates a predisposition to breast cancer.

112. (new) The method of claim 97 wherein the nucleotide sequence or fragment thereof of the BRCA1 gene is determined in at least five individuals with a genetic history which indicates a predisposition to breast cancer.

113. (new) The method of claim 97 wherein the nucleotide sequence or fragment thereof of the BRCA1 gene is determined in at least ten individuals with a genetic history which indicates a

predisposition to breast cancer.

114. (new) The method of claim 97 wherein the nucleotide sequence or fragment thereof of the BRCA1 gene is determined in at least fifty individuals with a genetic history which indicates a predisposition to breast cancer.

115. (new) A method for determining the haplotype of a human BRCA1 gene comprising:

(a) determining the nucleotide sequence of the BRCA1 gene or fragment thereof from at least one female individual with a family history which indicates a predisposition to breast cancer,

(b) determining the putative amino acid sequence of the protein or fragment thereof encoded by the BRCA1 gene from the determined nucleotide sequence, and

(c) comparing the determined putative amino acid sequence from said human to SEQ ID NO: 264 wherein the presence of at least one variation in the determined amino acid sequence indicates the presence of the haplotype.

116. (new) The method of claim 115 further comprising comparing the determined putative amino acid sequence to SEQ ID NO: 266.

117. (new) The method of claim 115 further comprising comparing the determined putative amino acid sequence to SEQ ID NO: 268.

118. (new) The method of claim 115 wherein the putative amino acid sequence or fragment thereof of the protein encoded by the BRCA1 gene is determined in at least two individuals with a genetic history which indicates a predisposition to breast cancer.

119. (new) The method of claim 115 wherein the putative amino acid sequence or fragment thereof of the protein encoded by the BRCA1 gene is determined in at least five individuals with a genetic history which indicates a predisposition to breast cancer.

120. (new) The method of claim 115 wherein the putative amino acid sequence or fragment thereof of the protein encoded by the BRCA1 gene is determined in at least ten individuals with a genetic

history which indicates a predisposition to breast cancer.

121. (new) The method of claim 115 wherein the putative amino acid sequence or fragment thereof of the protein encoded by the BRCA1 gene is determined in at least fifty individuals with a genetic history which indicates a predisposition to breast cancer.

122. (new) A method for determining the haplotype of a human BRCA1 gene consisting essentially of:

- (a) determining the nucleotide sequence of the BRCA1 gene or fragment thereof from at least one female individual with a family history which indicates a predisposition to breast cancer, and
- (b) comparing the determined nucleotide sequence from said female individual to SEQ ID NO: 1 (omi1) wherein the presence of at least one variation in the determined nucleotide sequence indicates the haplotype.

123. (new) A method for determining the haplotype of a human BRCA1 gene consisting essentially of:

- (a) determining the nucleotide sequence of the BRCA1 gene or fragment thereof from at least one female individual with a family history which indicates a predisposition to breast cancer,
- (b) determining the putative amino acid sequence of the protein or fragment thereof encoded by the BRCA1 gene from the determined nucleotide sequence, and
- (c) comparing the determined putative amino acid sequence from said human to SEQ ID NO: 2 (omi1) wherein the presence of at least one variation in the determined amino acid sequence indicates the presence of the haplotype.

124. (new) The method according to any of claims 97, 115, 122 or 123 wherein the determined haplotype of the human BRCA1 gene is associated with a predisposition to developing breast cancer.